



# Developing Educational & Professional Training Synergies in Aviation-Related Safety Academic Programs

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## Introduction

- While academic professional flight programs have successfully combined professional training and certifications (e.g., FAA flight ratings) for decades, other academic disciplines have rarely followed this model.
- Aviation-related disciplines (such as Safety) would substantially benefit from greater incorporation of professional certification and training programs.
- Utilizing concept mapping, the relationship between the Occupational Safety and Health Administration (OSHA) 30-hour General Industry Certification Program and the program outcomes for an undergraduate degree in a safety discipline was evaluated.
- Finally, it is discussed as to whether or not students are more likely to grasp and understand theoretical and practical concepts in safety-related academic courses as a result of taking an OSHA 30-Hour General Industry Certification Training Program.

## Purpose

Knowing that OSHA and the FAA share roles in managing aviation safety, it is plausible to hypothesize that the OSHA 30-hour General Industry Certification Program is conceptually related to the Industrial Psychology and Safety Undergraduate curriculum.

## Objectives of Concept Mapping

1. Show similarities of both the Industrial Psychology and Safety undergraduate program at Embry-Riddle Aeronautical University and the curriculum of OSHA's 30-Hour General Industry course.
2. To determine if taking an OSHA 30-Hour General Industry course will be beneficial in reinforcing and understanding concepts taught in the Industrial Psychology and Safety undergraduate curriculum.
3. Creating insight as to whether or not certain concepts taught in the OSHA 30-Hour General Industry Course should be implemented in the Industrial Psychology and Safety undergraduate curriculum.
4. Strengthening connections between the two curricula after said connections are observed via concept mapping.

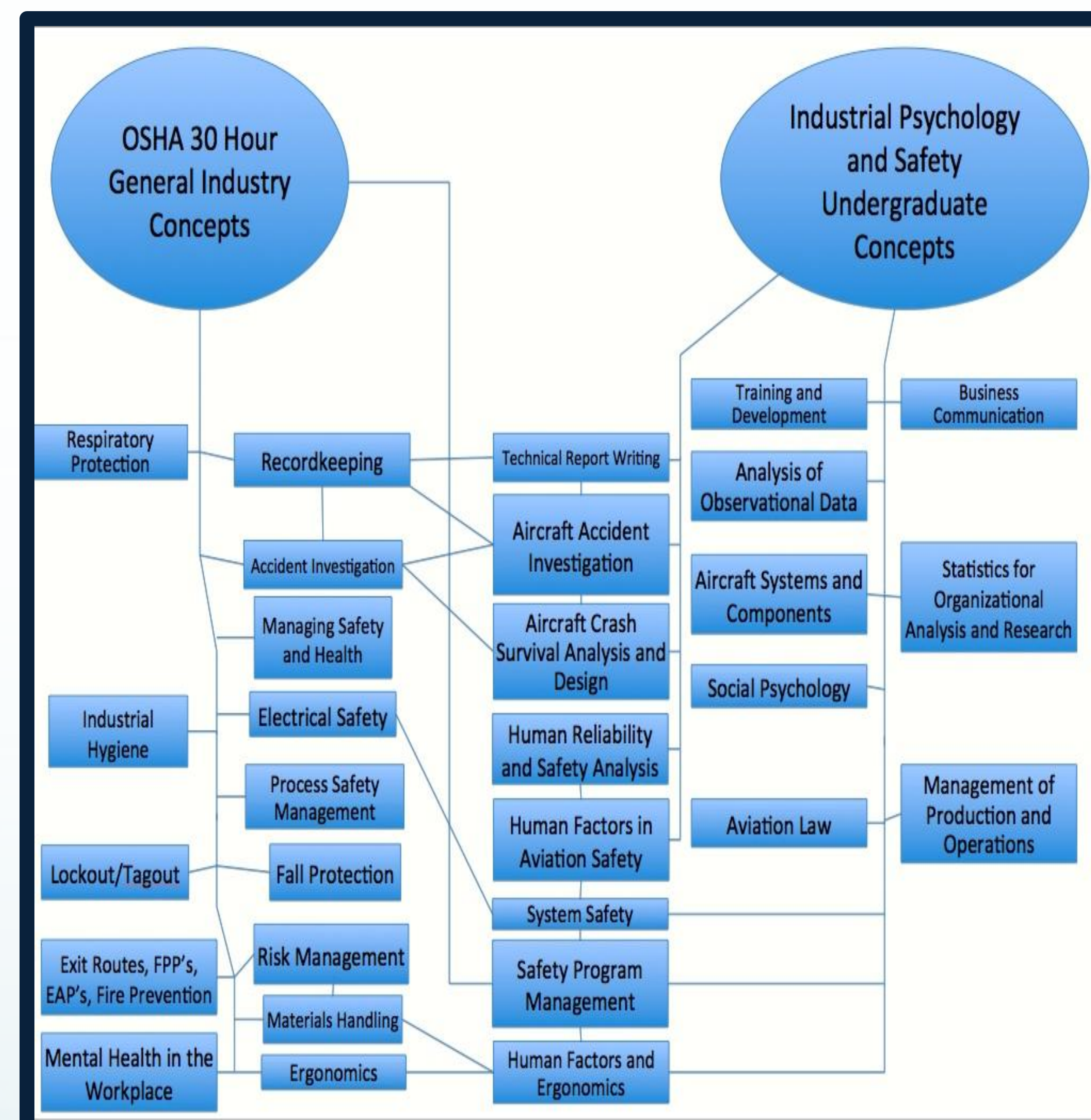
## Methods

“Joseph Novak's research and subsequent development of concept mapping (Novak, 1990, 2004; Novak & Canas, n.d.) builds on Ausubel's (1960) theoretical and empirical work in learning psychology” (Kuhaneck, Bortone, Frost, 2007).

In order to effectively conceptually map curricula, the following was done:

1. Review the curriculum concepts covered in an OSHA 30-Hour General Industry Course via Robertson Safety Institute.
2. Review the course requirements required for a bachelor's degree in Industrial Psychology and Safety via the Embry-Riddle Aeronautical University Prescott website.
3. List the concepts of both the OSHA 30 Hour General Industry course and the Industrial Psychology and Safety undergraduate concepts.
4. Map both of the, curricula focusing on the core courses that make up the bachelor requirement.
5. Criteria for creating a connection must be that the OSHA 30 Hour curriculum concept can facilitate the learning of undergrad aviation safety curriculum and vice-versa.
6. Conceptually analyze the connections between the two curricula.

## Results



### Curriculum Concept Connections

- OSHA accident investigation content shares common principles of air accident investigation as well as the accident survival and aircraft design content.
- The OSHA recordkeeping course has a direct role in writing accident reports, especially with an occupational accident; however it has similar application to aircraft accidents.
- The majority of the topics taught in the OSHA 30 Hour General Industry course make up the essentials of any safety program.
- OSHA electrical safety content would be beneficial in understanding system safety in aviation.
- OSHA Materials Handling and OSHA Ergonomics content would allow for a better understanding of the Ergonomics portion of the Human Factors and Ergonomics course.

## Discussion

### Benefits of Taking an OSHA 30 Hour Course

- The concept mapping model shows that an OSHA 30-hour General Industry Certification has many favorable connections to the undergraduate curriculum.
- Taking an OSHA 30 Hour General Industry course will allow for a better understanding of concepts established the Industrial Psychology and Safety Undergraduate curriculum, especially in the Safety Program Management course.
- Effective aviation safety managers should learn to create a dynamic safety program that complies with both FAA and OSHA regulations.
- The inclusion of an OSHA 30-hour course will foster a foster a safe working environment that will protect workers and promote an organizational aviation safety culture.

### Strengthening Connections

- Connections between the two curricula can be strengthened by incorporating an OSHA 30 General Industry certification as a course.
- Use the adult learning theory of andragogy to effectively strengthen and unite these two curricula.

### Future Plans

- Do the results of the current study extend to the curriculum of safety programs at other universities?
- Do the results of the current study extend to Embry-Riddle's graduate Industrial Psychology and Safety curriculum?

## Conclusion

The advantages of incorporating an OSHA-30 hour General Industry Certification within the Industrial Psychology and Safety Undergraduate Curriculum will facilitate better understanding of key aviation safety concepts.

## References

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